

## An Update to the Survey of Macrolepidopteran Moths Near Vontay, Hanover County, Virginia

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### INTRODUCTION

This paper updates the list of macrolepidopteran moth (= "macro moth" or "macro") species collected at a site on the Virginia Piedmont, 2 km W of Vontay in western Hanover County. The study site, methodology, and original species list are given in Ludwig (2000). The list is updated with new collections as well as identifications of additional specimens collected during the original study period. The new collections extend the study period from two years (30 October 1996 to 28 October 1998) to nearly four years (30 October 1996 to 14 September 2000) and increase the number of collection nights from 311 to >400. The species list from this study, along with others being gathered throughout Virginia by the Virginia Department of Conservation and Recreation's Division of Natural Heritage, is being used to ascertain the biological status and develop a complete list of the Commonwealth's macrolepidopteran moths.

### RESULTS AND DISCUSSION

A total of 190 macrolepidopteran moth specimens was pinned and identified during the extended study period, bringing the total number of collected specimens at this site to 2,088. These collections increased the number of species documented at this site from 492 to 521 and the number of genera from 286 to 298. (Table 1 and Appendix). The Noctuidae (306 species) and Geometridae (101) were most diverse with the Arctiidae (34) and Notodontidae (32) also rich.

Using a checklist of confirmed and possible macro-moths from Virginia (Virginia Division of Natural Heritage, unpub. data) numbering 1314 species, one estimate of the percentage of the Commonwealth's macrolepidopteran fauna represented at the Vontay site is about 39%. If the Noctuidae of Virginia are similar in richness to the noctuid faunas of Ohio (Rings et al.,

1992) and Kentucky (Covell, 1999) with 708 and 616 species, respectively, an estimate of the percentage of the Commonwealth's noctuid fauna represented at the Vontay site is about 43 to 49%.

An updated species-accumulation curve (Fig. 1) for this study indicates that additional macros will be recorded at the site should collections continue. Depending upon the projected trajectory of the curve, estimates of the total number of taxa recorded from this site over 10 years range from 560 to 660 macro-moth species, representing perhaps as much as 50% of the state's estimated total macro fauna.

Table 1. Summary of macro-moths encountered during this study by family given in order of Hodges et al. (1983).

<u>FAMILY</u>	<u>NO. OF GENERA</u>	<u>NO. OF SPECIES</u>	<u>NO. OF SPECIMENS</u>
Thyatiridae	2	2	9
Drepanidae	3	3	6
Geometridae	69	101	382
Epiplemidae	2	2	5
Mimallonidae	1	1	6
Apatelodidae	2	2	4
Lasiocampidae	4	5	8
Saturniidae	10	11 <sup>a</sup>	10
Sphingidae	12	17 <sup>b</sup>	32
Notodontidae	17	32	135
Arctiidae	18	34	93
Lymantriidae	2	5	21
Noctuidae	158	306	1377
TOTALS	298	521	2088

<sup>a</sup> Five species documented by sight records only

<sup>b</sup> One species documented by sight record only

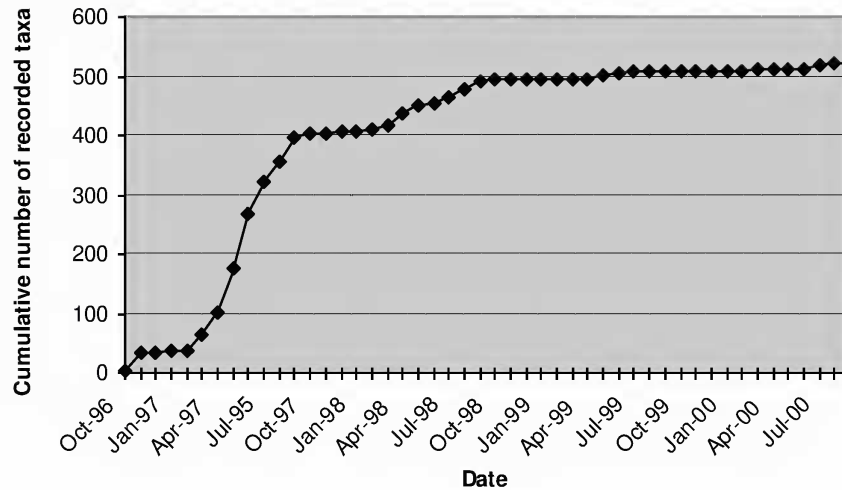


Figure 1. Species accumulation curve for macrolepidopteran moths collected near Vontay, Virginia.

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#### LITERATURE CITED

Covell, C. V., Jr. 1999. The Butterflies and Moths (Lepidoptera) of Kentucky: An Annotated Checklist.

Kentucky State Nature Preserves Commission, Scientific and Technical Series 6. 220 pp.

Hodges, R. W., T. Dominick, D. R. Davis, D. C. Ferguson, J. G. Franclemont, E. G. Munroe, & J. A. Powell. 1983. Check List of the Lepidoptera of America North of Mexico. E. W. Classey Ltd. & The Wedge Entomological Foundation, London. 284 pp.

Ludwig, J. C. 2000. A survey of macrolepidopteran moths near Vontay, Hanover County, Virginia. *Banisteria* 15: 16-35.

Rings, R. W., E. H. Metzler, F. J. Arnold, & D. H. Harris. 1992. The Owlet Moths of Ohio Order Lepidoptera Family Noctuidae. *Ohio Biological Survey Bulletin. New Series* 9 (2). 219 pp.

Appendix. Additional macro moth species identified during this study given in order of Hodges et al. (1983). Fields are: checklist number, species name, collection date (month/day/year), method (s = sugar bait, b = black light, i = incandescent light, m = mercury vapor light); numbers in parentheses indicate if the number of specimens is >1 for a given date and survey method. A ? is added if the specimen identification was not confirmed by Ferguson, Hall, Quinter, or Schweitzer. Asterisks denote species new for the study.

### Geometridae

06386	<i>Semiothisa ocellinata</i> (Gn.)	05/05/99 i
06443	<i>Glenoides texanaria</i> (Hulst)	04/05/00 i
06452	<i>Glena plumosaria</i> (Pack.)	05/22/99 i
06590	<i>Anavitrinella pampinaria</i> (Gn.)	07/05/99 m, 07/24/99 m
*06663	<i>Palaeocrita merriccata</i> Dyar	02/14/99 i ?
06726	<i>Euchlaena obtusaria</i> (Hbn.)	05/13/99 m (2)
06733	<i>Euchlaena amoenaria</i> (Gn.)	08/15/00 m
*06733a	<i>Euchlaena astylusaria</i> (Wlk.)	08/26/00 m
06763	<i>Nacophora quernaria</i> (J.E.Sm.)	05/21/99 m
06796	<i>Campaea perlata</i> (Gn.)	09/11/00 m
06836	<i>Anagoga occiduaria</i> (Wlk.)	05/07/99 m
06844	<i>Plagodis alcoolaria</i> (Gn.)	07/04/99 m, 04/01/00 b
*06884	<i>Besma endropiaria</i> (Grt.&Rob.)	05/21/99 m
06941	<i>Eusarca confusaria</i> Hbn.	06/06/99 m
07071	<i>Chlorochlamys chloroleucaria</i> (Gn.)	07/11/99 i
07075	<i>Chloropteryx tepperaria</i> (Hulst)	07/11/99 m
*07094	<i>Loboclelea ossularia</i> (Gey.)	05/12/99 m
07114	<i>Idaea demissaria</i> (Hbn.)	06/05/99 m, 06/11/99 i, 07/30/00 m
*07123	<i>Idaea obfusaria</i> (Wlk.)	07/02/99 m, 07/15/99 i
07132	<i>Pleuroprucha insulsaria</i> (Gn.)	06/26/99 m, 07/24/99 m (2)
07159	<i>Scopula limboundata</i> (Haw.)	07/05/99 m
07169	<i>Scopula inductata</i> (Gn.)	07/29/00 m ?
07179	<i>Leptostales rubromarginaria</i> (Pack.)	05/09/99 m, 07/03/99 m
07196	<i>Eulithis diversilineata</i> (Hbn.)	07/22/99 m
07416	<i>Costaconvexa centrostrigaria</i> (Woll.)	04/08/99 m, 03/08/00 i
07417	<i>Disclisioprocta stellata</i> (Gn.)	10/10/99 i
*07422	<i>Hydrelia inornata</i> (Hulst)	03/02/97 i ?
*07639	<i>Cladara atroliturata</i> (Wlk.)	03/02/97 i, 03/29/97 i

### Epiplemidae

07653	<i>Calledapteryx dryopterata</i> Grt.	07/29/98 m
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### Mimallonidae

07659	<i>Lacosoma chiridota</i> Grt.	07/03/99 m
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### Sphingidae

*07784	<i>Dolba hyloeus</i> (Dru.)	07/25/00 i
07824	<i>Paonias excaecatus</i> (J.E.Sm.)	07/31/00 m
*07826	<i>Paonias astylus</i> (Dru.)	07/29/00 m
07886	<i>Darapsa pholus</i> (Cram.)	08/02/00 m

**Notodontidae**

07929	<i>Nerice bidentata</i> Wlk.	05/13/99 m
07975	<i>Macrurocampa marthesia</i> (Cram.)	07/24/99 m
07990	<i>Heterocampa umbrata</i> Wlk.	07/01/99 m
07999	<i>Lochmaeus bilineata</i> (Pack.)	06/15/00 i
08005	<i>Schizura ipomoeae</i> Doubleday	07/05/99 m
08007	<i>Schizura unicornis</i> (J.E.Sm.)	06/06/99 m, 07/25/00 i
*08022	<i>Hyparpax aurora</i> (J.E.Sm.)	07/26/99 m

**Arctiidae**

08046	<i>Crambidia uniformis</i> Dyar	10/20/99 i
08053x	<i>Crambidia cephalica</i> (Grt.&Rob.) complex	08/03/99 m
08072	<i>Cisthene packardii</i> (Grt.)	06/06/99 m
*08104	<i>Comachara cadburyi</i> Franc.	05/02/99 m, 05/08/99 i
08140	<i>Hyphantria cunea</i> (Dru.)	06/10/99 m
08176	<i>Grammia anna</i> (Grt.)	06/06/99 m
08231	<i>Cynia oregonensis</i> (Stretch)	05/11/99 i
08267	<i>Cisseps fulvicollis</i> (Hbn.)	09/04/00 m

**Noctuidae**

08327	<i>Idia forbesi</i> (French)	06/06/99 s
*08329	<i>Idia diminuendis</i> (B.&McD.)	06/04/99 m, 06/05/99 i
08334	<i>Idia lubricalis</i> (Gey.)	07/01/99 s
08345	<i>Zanclognatha laevigata</i> (Grt.)	07/29/00 m
08358	<i>Macrochilo litophora</i> (Grt.)	06/10/99 m
08364	<i>Phalaenostola larentioides</i> Grt.	05/21/99 m, 06/05/99 m, 07/23/99 m
*08381	<i>Renia discoloralis</i> Gn.	07/24/99 m ?
08401	<i>Redectis vitrea</i> (Grt.)	06/15/00 i ?, 08/24/00 m ?
*08411	<i>Colobochoyla interpuncta</i> (Grt.)	05/08/99 m
08443	<i>Bomolocha bijugalis</i> (Wlk.)	04/30/00 i
08447	<i>Bomolocha madefactalis</i> (Gn.)	05/16/99 m, 06/04/99 m, 08/15/00 m
08465	<i>Plathypena scabra</i> (F.)	07/24/99 m
08479	<i>Spargaloma sexpunctata</i> Grt.	05/21/99 m, 07/29/99 m
08490	<i>Pangrapta decoralis</i> Hbn.	06/12/99 i
08502	<i>Metalectra tantillus</i> (Grt.)	08/26/00 m
08505	<i>Metalectra richardsi</i> Brower	08/15/00 m
08514	<i>Scolecocampa liburna</i> (Gey.)	08/05/00 m
*08523	<i>Gabara distema</i> (Grt.)	08/22/97 i
08591	<i>Phoberia atomaris</i> Hbn.	03/24/00 i
08651	<i>Lesmone detrahens</i> (Wlk.)	05/12/99 m, 06/06/99 s
*08699	<i>Zale obliqua</i> (Gn.)	03/08/00 i, 05/10/00 i
08705	<i>Zale bethumei</i> (Sm.)	04/08/99 m, 07/24/99 m, 03/09/00 i, 3/25/00 i, 06/11/00 i
08707	<i>Zale metatoides</i> McD.	06/03/99 m ?
08745	<i>Mocis texana</i> (Morr.)	06/11/99 m
08769	<i>Spiloloma lunilinea</i> Grt.	07/01/00 i
08771	<i>Catocala piatrix</i> Grt.	09/04/00 m (2)
08773	<i>Catocala epione</i> (Dru.)	07/29/00 m
*08790	<i>Catocala dejecta</i> Stkr.	08/05/00 m ?

## Noctuidae (continued)

08792	<i>Catocala vidua</i> (J.E.Sm.)	08/01/00 m
08801	<i>Catocala ilia</i> (Cram.)	07/02/99 s, 08/01/99 m
08851	<i>Catocala coccinata</i> Grt.	07/15/99 m
08872	<i>Catocala clintoni</i> Grt.	06/12/00 i
08898	<i>Allagrapha aerea</i> (Hbn.)	09/12/00 m
08904	<i>Chrysanympa formosa</i> (Grt.)	06/05/99 m
08959	<i>Paectes pygmaea</i> Hbn.	06/03/99 m, 06/13/99 i
08975	<i>Nycteola frigidana</i> (Wlk.)	03/09/00 i ?
08983.2	<i>Meganola spodia</i> Franc.	05/17/99 m, 06/05/99 m
08990	<i>Nola cilicoides</i> (Grt.)	05/22/99 i
*09003	<i>Tripudia quadrifera</i> (Zell.)	05/13/99 m
09037	<i>Hyperstrotia pervertens</i> (B.&McD.)	08/18/00 m, 08/24/00 m
09038	<i>Hyperstrotia villificans</i> (B.&McD.)	05/12/99 m, 05/12/99 m ?, 06/06/99 m ?, 06/10/99 m, 06/12/99 i
*09039	<i>Hyperstrotia flaviguttata</i> (Grt.)	07/30/00 m
09044	<i>Thioptera nigrofimbria</i> (Gn.)	06/13/99 m
09047	<i>Lithacodia muscosula</i> (Gn.)	06/28/98 i, 06/03/99 m
09051	<i>Lithacodia musta</i> (Grt.&Rob.)	06/13/99 m
09057	<i>Homophoberia apicosa</i> (Haw.)	06/05/99 m
*09136	<i>Acontia aprica</i> (Hbn.)	05/28/00 i
09169	<i>Bagisara rectifascia</i> (Grt.)	06/10/99 m
09189	<i>Charadra deridens</i> (Gn.)	08/15/00 m
*09193	<i>Raphia frater</i> Grt.	06/13/99 m
09208	<i>Acronicta betulae</i> Riley	07/25/99 m
09243	<i>Acronicta ovata</i> Grt.	07/29/00 m
09244	<i>Acronicta modica</i> Wlk.	05/09/99 m
09250x	<i>Acronicta inclara</i> Sm. complex	08/04/00 m
09251	<i>Acronicta retardata</i> (Wlk.)	05/17/99 m
09254	<i>Acronicta afflicta</i> Grt.	05/13/99 m, 06/06/99 m, 08/14/00 m (2)
09264	<i>Acronicta longa</i> Gn.	08/02/00 m
*09286	<i>Harrisimemna trisignata</i> (Wlk.)	05/09/99 m
09454	<i>Amphipoea velata</i> (Wlk.)	06/13/99 m
*09463	<i>Parapamea buffaloensis</i> (Grt.)	09/14/00 m
09466	<i>Papaipema cataphracta</i> (Grt.)	11/01/99 i
*09618	<i>Phosphila turbulenta</i> Hbn.	08/25/00 m
09619	<i>Phosphila miselioides</i> (Gn.)	07/02/99 s
09669	<i>Spodoptera ornithogalli</i> (Gn.)	08/26/00 m
09678	<i>Elaphria versicolor</i> (Grt.)	08/09/00 m
*09679	<i>Elaphria chalcedonia</i> (Hbn.)	11/19/99 i
09681x	<i>Elaphria festivooides</i> (Gn.) complex	05/02/99 m, 11/05/99 i, 09/04/00 m
09690	<i>Condica videns</i> (Gn.)	04/08/99 m, 07/26/99 m
09699	<i>Condica sutor</i> (Gn.)	11/01/99 i
09720	<i>Ogdoconta cinereola</i> (Gn.)	06/08/00 i
*09930	<i>Pyreferra citrombra</i> Franc.	04/03/99 m
09941	<i>Sericaglaea signata</i> (French)	02/27/00 s
09957	<i>Sunira bicolorago</i> (Gn.)	09/04/00 m
10019	<i>Psaphida resumens</i> Wlk.	04/02/99 m (2), 04/03/99 m, 04/07/99 m (3)
10021	<i>Copivaleria grotei</i> (Morr.)	04/17/99 m
10288	<i>Orthodes detracta</i> (Wlk.)	06/03/99 m

## Noctuidae (continued)

10368	<i>Lacinipolia meditata</i> (Grt.)	09/18/00 m
10397	<i>Lacinipolia renigera</i> (Steph.)	05/08/99 m, 06/10/99 m, 08/26/00 m
*10405	<i>Lacinipolia lorea</i> (Gn.)	06/13/99 m
10438	<i>Pseudaletia unipuncta</i> (Haw.)	10/20/99 i
10456	<i>Leucania adjuta</i> (Grt.)	08/23/00 m
10461	<i>Leucania ursula</i> (Fbs.)	09/12/00 m
10487	<i>Orthosia rubescens</i> (Wlk.)	04/03/99 m
10488	<i>Orthosia garmani</i> (Grt.)	03/08/00 i
10495	<i>Orthosia hibisci</i> (Gn.)	04/03/99 m, 04/01/00 b
10502	<i>Himella intractata</i> (Morr.)	04/03/99 m, 04/08/99 m
10532b	<i>Homorthodes lindseyi</i> (Benj.)	05/12/99 m
10567	<i>Ulolonche culea</i> (Gn.)	05/07/99 m, 05/12/99 m, 05/19/99 m
10915	<i>Peridroma saucia</i> (Hbn.)	07/25/00 i
10967	<i>Xestia elimata</i> (Gn.)	10/15/99 i
10969	<i>Xestia dilucida</i> (Morr.)	10/10/99 i
11006	<i>Protolampra brunneicollis</i> (Grt.)	07/06/99 m
*11012.1	<i>Noctua pronuba</i> (L.)	05/29/00 i
11068	<i>Helicoverpa zea</i> (Boddie)	08/01/00 m
*11117	<i>Schinia lynx</i> (Gn.)	08/01/00 m